SC98: 10th ANNIVERSARY

HIGH PERFORMANCE NETWORKING AND COMPUTING CONFERENCE

SC98: High Performance Networking and Computing will be held at the Orange County Convention Center in Orlando, Florida, USA, November 7 - 13, 1998. SC98 continues the tradition of previous conferences, focusing on networking, distributed computing, data-intensive applications, supercomputing, scalable computing and other emerging technologies that push the frontiers of communications, computing and computational science. SC98 returns to the city of the first conference to celebrate the tenth anniversary in this series, sponsored by IEEE Computer Society and ACM SIGARCH.

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the SC98 Web site to Webmaster.

Photo credits: Orange County Convention Center
and Iowa State University.

Anniversaries always afford us the opportunity to look back and recall where we were so many years ago and consider our own progress.

What computers were you using 10 years ago? Are any of them in the Smithsonian exhibit on "Information Age: People, Information, and Technology"? How much faster, stronger, and better is the hardware and software you're using today? What HPC companies have folded and unfolded in the past decade?

SC98, the 10-year anniversary of this conference, includes several perspectives on our collective past. Don't miss the History of the Conference Exhibit (booth 110), showcasing the issues, statistics and major announcements from past conferences. And on Friday morning take part in the panel session on the past and future 10 years in HPC, chaired by Al Brenner of the Institute for Defense Analyses.

Also this year, we consider the things that have brought us all together as a community: pursuit of teraflops&emdash;and now petaflops&emdash;technology, the ebb and flow of agency support for HPC and networking, the tremendous increase in public interest and use in computing resources that dwarf what was available to leading researchers just 10 years go, and this conference, which has established itself as the pulse of our industry and the nexus for discussions about achievements and future goals.

We welcome you to Orlando and to the continued discussions of our accomplishments and goals for HPCC.

Dennis Duke, **SC98 Chair**

Louis Turcotte, **SC98 Vice Chair**

Ann Redelf, **SC98 Executive Director**

Questions regarding this site to: Webmaster

CONFERENCE AT A GLANCE

	SATURDAY NOV. 7	SUNDAY NOV. 8	MONDAY NOV. 9	TUESDAY NOV. 10	WEDNESDAY NOV. 11	THURSDAY NOV. 12	FRIDAY NOV. 13
TUTORIALS		8:30AM - 5PM	8:30AM - 5PM				
KEYNOTE ADDRESS				8:30 - 10AM			
INVITED TALKS				1:30 - 3PM 3:30 - 5PM	1:30 - 3PM 3:30 - 5PM	3:30 - 5PM	
CHALLENGES-OF-THE-FIELD TALKS					3:30 - 5PM	8:30 - 10AM	
TECHNICAL PAPERS / PANELS				10:30 - NOON 1:30 - 3PM 3:30 - 5PM	10:30 - NOON 1:30 - 3PM 3:30 - 5PM	10:30 - NOON 1:30 - 3PM 3:30 - 5PM	8:30 - 10AM 10:30AM - NOON
AWARD SESSIONS						1:30 - 3PM [Awards Plenary and Presentation on Seymour Cray] 3:30 - 5:30PM [Bell and Fernbach]	
TOWN HALL MEETING [Presidential Advisory Cmte]				5:00 - 6:30PM			
HPC CHALLENGE				1:30 - 6PM	10AM - 6PM	10AM - NOON 1:30 - 3PM [Awards]	
WORK-IN-PROGRESS REPORTS				1:30 - 3PM 3:30 - 5PM			
EXHIBITOR FORUM				10AM - 6PM	10:00AM - 6PM	10:00AM - 4PM	
EDUCATION PROGRAM	7 - 9PM [Reception]	8:30AM - 7PM	8:30AM - 6:45PM	10:30AM - 7PM	8:30AM - 6PM	8:30AM - 5PM	
EDUCATION ELECTRONIC POSTERS				5:15 - 7PM			
EXHIBITS: INDUSTRY, RESEARCH, POSTERS, HISTORY			7 - 9PM [Gala Opening]	10AM - 6PM	10AM - 6PM	10AM - 4PM	
SOCIAL EVENTS	7 - 9PM [Education Reception]		7 - 9PM [Gala Opening Reception]			6:30 - 10PM [Conference Reception]	
REGISTRATION / STORE	1 - 6PM	7:30AM - 6PM	7:30AM - 9PM	7:30AM - 6PM	7:30AM - 6PM	7:30AM - 5:00PM	8AM - NOON
PRESS ROOM			9AM - 6PM	9AM - 6PM	9AM - 6PM	9AM - 5PM	9AM - NOON

THE PROGRAM

TUTORIALS [Abstracts]

Tutorials at a Glance
email: tutorials98@mail.supercomp.org

Tutorials run for two days, Sunday and Monday, and consist of 12 full-day and 8 half-day sessions. Leaders in high performance networking and computing will cover a broad range of topics such as parallel and distributed computing, collaborative technologies, network architectures, operating systems, compiler technology, algorithms and numerical methods, program development tools, data mining and storage access systems. Attendees must register separately for tutorials (see conference registration for more details) and can receive a one- or two-day passport. Attendees with passports may attend any tutorials offered on one or both days, a tutorials lunch and receive tutorials notes. Please refer to Tutorials for tutorial descriptions.

TECHNICAL PROGRAM

Technical Papers [Abstracts]
Technical Program at a Glance
email: papers98@mail.supercomp.org

The SC98 technical program, presented Tuesday through Friday, includes plenary and parallel sessions. These talks have been organized to ensure that topics of interest to a wide range of audiences are available during these times. The parallel tracks are divided into two components:

- Presentations by authors of contributed papers. These represent the best papers submitted to the conference. Each paper has been through a competitive peer review process and has been selected as an outstanding contribution. There will be 54 technical papers presented at SC98.
- Presentations on general-interest topics in a variety of areas. Sessions will include invited talks as well as engaging panel discussions.

See Technical Program at a Glance for the schedule of talks and panel discussions.

KEYNOTE ADDRESS, CHALLENGES-OF-THE-FIELD TALKS AND INVITED TALKS

Don't miss the keynote address by Bran Ferren of Walt Disney Imagineering, challenges-of-the-field talks and invited talks from academic and industry leaders in pioneers.

PANEL SESSIONS [Abstracts]

Hear different views and perspectives from panelists who are well known in their fields.

EDUCATION PROGRAM

Education Program at a Glance
email: education98@mail.supercomp.org

The SC98 Education Program is focused on using collaborative technologies to advance the understanding of high performance networking and computing in education. We will explore new models for teaching and learning facilitated by new technologies such as videoconferencing, virtual reality, workgroup tools, web, Java, real audio and visualization. The Education Program, which begins on Sunday, is open to all SC98 registrants.

For the first time we will deliver the education program to other sites using IP technology. Using the new standards-based video, we will connect Orlando with sites in Illinois, Iowa and North Carolina via the vBNS and state networks. Sessions will be led from Orlando, site of SC98, and from other states using multi-way video conferencing to involve all participants.

K-12 teachers should register for SC98 using the conference registration form.

AWARDS SESSION

The awards session will consist of two parts. At the first session, the winners of the Best Paper Award, Best Student Paper Award, the Sid Fernbach Award, the Gordon Bell Award and the HPC Challenge will be presented. The session will also include a Gordon Bell lecture on Seymour Cray. Following this, the winners of the Fernbach Award and the Gordon Bell finalists will give presentations on their work.

RESEARCH EXHIBITS

email: research_ex98@mail.supercomp.org

Resource intensive computational science, scientific collaboration and leading edge technologies characterize the SC98 Research Exhibits. They exchange and present new and innovative research efforts and results best suited to live interchange and demonstration. The research exhibits from the world's research universities, centers and laboratories promote interaction and discussion among the presenters and conferees. High performance network links are used for dynamically presenting research that involves distributed collaborating sites or for linking to remote resources or special facilities.

The Research Exhibit area is adjacent to the industry exhibits and is staffed by booth representatives during all announced exhibition hours, beginning with the Monday evening Gala Opening.

POSTER EXHIBITS

email: poster98@mail.supercomp.org

Poster exhibits report results and experiences on topics related to high performance networking and computing. These exhibits offer researchers an opportunity to present their results informally and to interact

with the audience. The poster exhibits will be located immediately inside the entrance to Exhibit Hall A2 on the 800 aisle.

INDUSTRY EXHIBITS

email: industry_ex98@mail.supercomp.org
DC Expositions, Inc.: dc@dcexpo.com

Complementing the SC98 technical program are the industry exhibits, which feature industry leaders in high performance networking and computing and associated software, visualization tools and services. The 183,000 square-foot exhibit hall will open with a gala reception on Monday, November 9. The exhibition will then open for technical program attendees Tuesday, November 10 through Thursday, November 12.

HISTORY EXHIBIT [Booth 110]

To commemorate the 10th anniversary of the conference, SC98 will present an exhibit showcasing scenes, issues and statistics of past conferences and will highlight the important high performance computing milestones that occurred in each year. This will include important announcements of new commercial products (hardware and software), achievements in performance level and the unfolding and folding of important companies. Modules from important computers in use during this ten-year period, demonstrating changes in technology, will also be on display.

SCINET98 [Booth 360]

email: scinet98@mail.supercomp.org

SCinet98 will work with Federal agencies, the private sector, and the National Coordination Office for Computing, Information, and Communications, to provide SC98 connectivity to such federal high performance networks as NSF's vBNS, NASA's NREN, the multiagency ATDnet, DoD's DREN, and DOE's ESnet, as well as private sector networks. These networks will be used in part to demonstrate Next Generation Internet technologies and applications.

HPC CHALLENGE

email: challenge@mail.supercomp.org

The SC98 High Performance Computing Challenge (HPC Challenge) provides an opportunity for researchers to show off their innovative ideas. Participants will have two sessions to present their latest on-the-edge work to a panel of judges who represent industry, universities and government laboratories. Groups will be asked to give a poster presentation at the Gala Opening on Monday night and a 20-minute demonstration to the judging panel on Wednesday. Awards will be presented to the winners on Thursday afternoon at the Awards Session.

BIRDS-OF-A-FEATHER

email: bof98@mail.supercomp.org

Birds-of-a-Feather sessions, commonly referred to as BOFs, are informal get-togethers for conference attendees to discuss topics of mutual interest. Meeting room facilities are provided at the convention center, and a BOF notice board will publicize the meeting schedule.

New this year is an informal gathering of marketing/communications folks, scheduled for Sunday, 5-7PM. Discussion topics include advocating for research; science communications; working with national media; visualization and web-based communications. Location TBA.

WORK-IN-PROGRESS REPORTS

With increasing frequency, invitation-only workshops are being used as an approach to make quick progress on focused R&D topics, identifying short-term needs, as well as long-term research agendas. Given the importance of some of these meetings, we present an opportunity for SC98 attendees to hear reports and results from selected workshops. Many of these reports will have follow-up information available in the research exhibit area.

EXHIBITOR FORUM

email: forum98@mail.supercomp.org

The exhibitor forum provides industry exhibitors the opportunity to showcase recent breakthroughs in research and development and to discuss new application areas, new directions and new technologies in areas related to high performance networking and computing.

Presentations will be held Tuesday, Wednesday and Thursday from 10am to 6pm but will not be presented during the keynote address and the Challenges-of-the-field talks.

TOWN HALL MEETING with the President's Information Technology Advisory Committee (PITAC)
Tuesday, November 10
5:00PM - 6:30PM
Room 110A

Moderators: Bill Joy, Sun Microsystems
Ken Kennedy, Center for Research on Parallel Computation and Rice University
Panelists: Advisory Committee members

In February 1997, President Clinton established the Information Technology Advisory Committee, formerly the Advisory Committee on High Performance Computing and Communications, Information Technology and the Next Generation Internet. In August 1998 the Committee released an Interim Report whose principal findings are that Federal information technology (IT) research and development (R&D) is inadequate and too heavily focused on near-term problems. The report recommends four research priorities: software, scalable information infrastructure, high-end computing, and socio-economic and workforce impacts. The report also

addresses modes of research support and management of Federal IT research. The panelists will summarize the report and will discuss the comments they've received since its release and their plans for the final report. The Committee will answer questions provided in advance, followed by an open mike session for questions from the floor. The Interim Report and further information about the PITAC can be found at HYPERLINK http://www.ccic.gov/ac/

TOWN HALL MEETING on SC Conferences
Thursday, November 12
10:30AM- 12:00NN
Room 101A

Moderator: Dona Crawford, Sandia National Laboratories, SCxy Steering Committee

Attendees will have the chance to interact with committee members from SC98, SC99, SC2000, and SCxy (the SC conference series' steering committee), discuss this year's conference, and make suggestions for future years' conferences. This is also the ideal opportunity for attendees to express their interest in serving on one of the conference's diverse committees. Plan to attend and make your voice heard.

SOCIAL ACTIVITIES

Kicking off SC98 will be the traditional gala opening reception on Monday, November 9, 7-9 pm. Attendees will have the opportunity to meet exhibitors and preview recent hardware/software developments in high performance networking and computing. The conference reception will be held on Thursday, November 12, 6:30pm-10 pm at Universal Studios theme park. This will include dinner and entertainment.

SC98 TOC
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Technical Papers Abstracts:

INVITED TALKS

Abstract titles and authors for Tuesday, Wednesday, and Thursday are provided below.

TUESDAY, NOVEMBER 10

10:30-12:00 am

PARALLEL I/O

A Case for Using MPI's Derived Datatypes to Improve I/O Performance
Rajeev S. Thakur, Argonne National Laboratory

TFLOPS PFS: Architecture and Design of a Highly Efficient Parallel File System
Sharad Garg, Intel Corporation

PDS/PIO: Lightweight Libraries for Collective Parallel I/O
Judy E. Sturtevant, Sandia National Laboratory

MULTITHREADED ARCHITECTURES/COMPUTING

Multi-processor Performance on the Tera MTA
Allan E. Snavely, San Diego Supercomputer Center

An Initial Evaluation of the Tera Multithreaded Architecture and Programming System Using the C3I Parallel Benchmark Suite
Sharon M. Brunett, California Institute of Technology

A Hierarchical Load-Balancing Framework for Dynamic Multithreaded Computations
Vijay Karamcheti, New York University

PHYSICS & ENGINEERING

The UCLA AGCM in High Performance Computing Environments
Carlos R. Mechoso, UCLA

Adaptive Parallel Computation of a Grand-Challenge Problem: Prediction of the Path of a Solar-Corona Mass Ejection
Quentin F. Stout, University of Michigan

High-Performance Simulation of Internal Combustion Engines
Andreas Werner, High Performance Computing Center (Stuttgart)

1:30-3:00 pm

ADVANCED COMPILER TECHNIQUES

Efficient Algorithms for Block-Cyclic Array Redistribution between Processor Sets
Neungsoo Park, USC

High Performance Fortran Compilation Techniques for Parallelizing Scientific Codes
Vikram S. Adve, Rice University

Techniques for Speculative Run-Time Parallelization of Loops
Manish Gupta, IBM T. J. Watson Research Center

ENVIRONMENTS & MIDDLEWARE FOR APPLICATIONS

A Parallel Linear Algebra Server for MATLAB-like Environments
Greg Morrow, University of Texas at Austin

OVERTURE: An Object-Oriented Framework for High-Performance Scientific Computing
Federico Bassetti, Los Alamos National Laboratory

Agent Middleware for Heterogeneous Scientific Simulations
Shirun Ho, Real World Computing Partnership

3:30-5:00 pm

NETWORKS

Implementation and Analysis of the Virtual Interface Architecture
Philip Buonadonna, University of California, Berkeley

MPI-StarT: Delivering Network Performance to Numerical Applications
Parry J. Husbands, Massachusetts Institute of Technology

User-Space Communication: A Quantitative Study
Angelos Bilas, Princeton University

DISCRETE ALGORITHMS

Analyzing the Error Bounds of Multipole-Based Treecodes
Vivek Sarin, Purdue University

Efficient Selection Algorithms on Distributed Memory Computers
Einar L. G. Saukas, University of Sao Paulo (Brazil)

High Performance Multidimensional Analysis and Data Mining
Sanjay Goil, Northwestern University

WEDNESDAY - NOVEMBER 11

10:30-12:00 am

COLLABORATIVE COMPUTING

A Prototype Notebook-Based Environment for Computational Tools
Jenifer Skidmore, University of Oregon

CCF: Collaborative Computing Frameworks
Vaidy Sunderam, Emory University

A Collaborative Framework for Distributed Microscopy
B. Parvin, Lawrence Berkeley National Laboratory

CACHE COHERENCE

Optimizing Software Cache-Coherent Cluster Architectures
Xiaohan Qin, IBM T. J. Watson Research Center

StarT-Voyager: Exploring Scalable SMP Issues
Boon S. Ang, MIT

Reducing Coherence Overhead of Barrier Synchronization in Software DSMs
Jae Bum Lee, Seoul National University

GRAPH PARTITIONING APPLICATIONS

Multilevel Algorithms for Muli-Constraint Graph Partitioning
George Karypis, University of Minnesota

Dynamic Repartitioning of Adaptively Refined Meshes
Kirk A. Schloegel, University of Minnesota

S-HARP: A Parallel Dynamic Spectral Partitioner
Andrew Sohn, New Jersey Institute of Technology

1:30-3:00 pm

RUN TIME SYSTEMS

Pthreads for Dynamic and Irregular Parallelism
Girija J. Narlikar, Carnegie Mellon University

OpenMP on Networks of Workstations
Honghui Lu, Rice University

Communication Overlap in Multi-Tier Parallel Algorithms
Scott B. Baden, UCSD

SYSTEMS

Making Sparse Gaussian Elimination Scalable by Static Pivoting
Xiaoye Sherry Li, Lawrence Berkeley National Laboratory

A New Lanczos Method for Electronic Structure Simulation
Kesheng Wu, Lawrence Berkeley Laboratory

Tuning Strassen's Matrix Multiplication for Memory Efficiency
Mithuna S. Thottethodi, Duke University

3:30-5:00 pm

TOOLS

Supporting Runtime Tool Interaction for Parallel Simulations
Christopher W. Harrop, University of Oregon

Automatically Tuned Linear Algebra Software
R. Clint Whaley, University of Tennessee

A Comparison of Automatic Parallelization Tools/Compilers on the SGI Origin 2000
Michael Frumkin, NASA

BIOLOGICAL & MEDICAL APPLICATIONS

The Large Scale Parallelization of a Conformational 3D Protein Structure Prediction Application
Philip F. LoCascio, Oak Ridge National Laboratory

An out-of-core Implementation of the Massively Parallel Multireference Configuration Interaction Program
Holger Dachsel, Pacific Northwest National Laboratory

Real-Time Image Segmentation for Image-Guided Surgery
Simon K Warfield, Brigham and Women's Hospital

SCHEDULING

Highly Efficient Gang Scheduling Implementation
Atshushi Hori, Real World Computing Partnership

The Penn State Computing Condominium Scheduling System
Vijay K. Agarwala, The Penn State University

Fine-Grain Cycle Stealing for Networks of Workstations
Kyung D. Ryu, University of Maryland

THURSDAY, NOVEMBER 12

10:30-12:00 am

METACOMPUTING

A Grid-Enabled MPI: Message Passing in Heterogeneous Distributed Computing Systems
Ian Foster, Argonne National Laboratory

A Scalable and Highly Available System for Serving Dynamic Data at Frequently Accessed Web Sites
Jim R. Challenger, IBM TJ Watson Research Center

WebFlow - High-Level Programming Environment and Visual Authoring Toolkit for High Performance Distributed Computing
Erol Akarsu, Syracuse University

SYSTEMS

Measurement of a Scientific Workload Using the IBM Hardware Performance Monitor
Robert J. Bergeron, NASA

An Infrastructure for Efficient Parallel Job Execution in Terascale Computing Environments
Jose E. Moreira, IBM

Scaling of Beowulf-class Distributed Systems
John K. Salmon, California Institute of Technology

3:30-5:00 pm

NUMERICAL ALGORITHMS

Integration of Application Design, Parallelization and Performance Evaluation
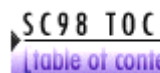Michela Taufer, Laboratory for Computer Systems

A Parallel Rendezvous Algorithm for Interpolation Between Multiple Grids
Steve Plimpton, Sandia National Laboratory

Application of a High Performance Parallel Eigensolver to Electronic Structure Calculations
Mark P. Sears, Sandia National Laboratory

EDUCATION PROGRAM

Education Program at a Glance
email: education98@mail.supercomp.org
November 8-12, 1998
Orlando, Florida
SC98 home page: http://supercomp.org/sc98/

Education Program Daily Schedules
To view the daily schedules of hands-on sessions, papers, panels, posters and demos,
please visit the following links:

> Sunday, Nov. 8
> Monday, Nov. 9
> Tuesday, Nov. 10
> Wednesday, Nov. 11
> Thursday, Nov. 12

The SC98 Education Program is focused on using collaborative technologies to advance the understanding of high performance networking and computing in education. We will explore new models for teaching and learning facilitated by new technologies such as videoconferencing, virtual reality, workgroup tools, WWW, Java, real audio, and visualization. The Education Program, which begins on Sunday, is open to all SC98 registrants.

For the first time in the history of the conferences, we will deliver the education program to other sites over IP (Internet Protocol). Using the new standards-based video over IP technology we will connect Orlando with sites in Illinois, Iowa, and North Carolina via the vBNS and state networks. Sessions will be led from Orlando, site of SC98, and from other states using multi-way videoconferencing to involve all participants.

Those eligible to apply for travel and conference registration support are a) middle or high school teachers in math, science, computer science or b) university faculty members whose primary responsibility is K-12 teacher education (with particular emphasis on faculty from the Department of Education) when submitting a joint application with a middle or high school teacher. Teachers who have previously attended are strongly encouraged to file a joint application for support. Preference for support will be given to new attendees and attendees filing joint applications (i.e. partnering between a teacher and a faculty member who teaches classes for undergraduates majoring in education.

Applications for travel and registration support will be due September 10, 1998. Please fill out the form at http://www.scd.ucar.edu/tmp/sc98ta/ We will inform applicants by October 1, 1998 via email.

All K-12 teachers must register for SC98 using the online conference registration at the $200 rate. Most of the Education Program participants will be housed in the Clarion Hotel. Other educators may request the Clarion but are not guaranteed a room at the Clarion. Unsupported teachers must make their own hotel reservations using the online Conference Housing Registration Form. The deadline for housing reservations are October 2, but attendees should make a housing reservation earlier for the best choices.

If you are approved for registration support we will email you instructions on how to registration and obtain a hotel room at the Clarion.

Questions on the Education Program or housing or registration for teachers may be directed to education98@mail.supercomp.org.

SC98 TOC
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Exhibition Hours

Tuesday	November 10	10 am - 6 pm
Wednesday	November 11	10 am - 6 pm
Thursday	November 12	10 am - 4 pm

SC98: High Performance Networking and Computing Conference will bring together scientists, engineers, designers and managers from all areas of high performance networking and computing and showcase the latest in systems, applications and services. SC98 is the eleventh in a series of highly successful conferences sponsored by IEEE Computer Society and ACM SIGARCH. SC98 will be held at the Orange County Convention Center in Orlando, Florida, November 7-13, 1998, the location of the first SCXY conference.

Located in Halls A-1 and A-2 (183,000 square feet) of the convention center, the exhibition will open with a Gala Opening for technical program attendees on Monday, November 9, from 7pm - 9pm (others may purchase tickets on site). After the opening, exhibition hours will be from 10am - 6pm on Tuesday and Wednesday, and from 10am - 4pm on Thursday.

Research Exhibits
http://www.supercomp .org../exhibits/research.html
Conference participants can see working demonstrations of research projects by visiting the research exhibit on the main exhibit floor. These exhibits are, in general, interactive, and enable participants to have one-on-one discussions with the developers.

List of Research Exhibits

Poster Exhibits
http://www.supercomp.o rg../exhibits/poster.html
SC98 participants will be able to see and discuss late-breaking results with the authors in an informal atmosphere.

Industry Exhibits / Exhibitor Prospectus
http://www.supercomp .org../exhibits/industry.html
Exhibits featuring leaders in the industry in high-performance computing and associated software, visualization tools and services will be on display at SC98.

List of Exhibitors

SC98 Exhibit Floor

Please direct questions or comments about the exhibits to:

> **Research Exhibits**
> Elizabeth C. Schermerhorn

SC98 Research Exhibits Chair
Fermi National Accelerator Laboratory
1 607 844 3481
mailto:research_ex98@mail.superco mp.org

Poster Exhibits
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SC98 Posters Chair
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1 630 252 1682
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1 510 486 7577
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1 702 322 5881
1 702 322 0924 fax
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Exhibitor Forum
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1 650 604 6550

SC98 TOC
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sc98@mail.supercomp.org

All phone inquiries to:

1 888 778 sc98
1 619 534 8303 fax

General address:

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NPACI, UCSD
10100 Hopkins Drive
La Jolla, CA, USA 92093

Technical Papers questions to:

papers98@mail.supercomp.org

Technical Papers contacts:

Joanne L. Martin
SC98 Technical Program Chair
IBM Corporation
1 914 499 6044

Valerie Taylor
Architecture Papers Chair
Northwestern University
1 847 467 1168

Daniel Frye
Languages and Environments Papers Co-Chair
IBM
1 914 433 7876

Mary Zosel
Languages and Environments Papers Co-Chair
Lawrence Livermore National Laboratory
1 510 422 4002

Horst Simon
Applications Papers Chair
Lawrence Berkeley National Laboratory/NERSC
1 510 486 7377

Education Program questions to:

education98@mail.supercomp.org

Education Program contact:

Ginger Caldwell
SC98 Education Chair
National Center for Atmospheric Research
1 303 497 1229

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tutorials98@mail.supercomp.org

Tutorials contact:

Margaret Simmons
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1 601 688 1583

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mailto:research_ex98@mail.supercomp.org

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Exhibitor Forum questions to:

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NASA Ames Research Center
1 650 604 4754

Dave Robertson
Sterling Software
NASA Ames Research Center
1 650 604 6550

SCinet98 questions to:

scinet98@mail.supercomp.org

SCinet98 contact:

Merritt Jones
SC98 Networking Chair
The MITRE Corporation
1 703 883 5471

Birds-of-a-Feather (BOFs) questions to:

bof98@mail.supercomp.org

BOF contact:

John W. Cobb
SC98 BOF Chair
Oak Ridge National Laboratory
1 423 576 5439

Panels questions to:

panels98@mail.supercomp.org

Panels contacts:

John P. Riganati, Co-Chair
Sarnoff Corporation
1 609 734 2170

Ed Oliver, Co-Chair
Oak Ridge National Laboratory
1 423 241 3249

Questions regarding this site to: Webmaster

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> IEEE Computer Society
> Membership Services
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> cs.info@computer.org

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Committee Member | Term Ends

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Dona Crawford | 11/98

Ann Hayes | 11/98

Bob Borchers | 11/99

Marisa Chancellor | 11/99

Dennis Duke | 11/99

Ziaodong Zhang (IEEE Representative) | 11/99

Beverly Clayton | 11/00

Cherri Pancake | 11/00

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Greg Papadapoulos | 11/01

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Anne Marie Kelly (IEEE Computer Society)

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SC99

PORTLAND, OREGON

DON'T MISS THE CHANCE TO PRESENT YOUR WORK AT SC99!

SC99 is a unique event that will bring together scientists, engineers, designers, managers, and executives from all areas of high performance networking and computing and the global information infrastructure. This conference provides a showcase for new developments in scalable architectures, networking, enabling technologies, data archives, visualization, and computational modeling. Both the technical program and the exhibition will include new activities that demonstrate how HPC affects the broader computing world.

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computational modeling · data archives · visualization

NOVEMBER 13-19, 1999

scalable architectures · networking · enabling technologies

NOW is the time to consider your
participation in SC99, the conference
for high performance networking and
computing. The conference will feature:

- Technical Papers
- Tutorials
- Research Exhibits

- Poster Exhibits
- HPC Games
- Birds-of-a-Feather
  Sessions

- SCinet99
- Education Program
- Industry Exhibits
  and Exhibitor Forum

■ The SC conference has for many years been the proving ground for late-breaking research in high performance networking and computing.

■ The technical program is the strongest of any high performance networking and computing conference.

■ SC99's focus will be the impact of high-performance networking and computing—on other areas of computing, on industry, and on education.

■ Special program activities will examine the "trickle-down" effect as high-end innovations become adopted for mainstream technologies and applications.

■ The conference is organized by world leaders in high performance networking and computing from academia, government, and industry.

■ The annual SCinet infrastructure for the conference is a true national collaboration and a demonstration of advanced networking management and performance.

■ The combination of research, poster, and industry exhibits on the same exhibition floor allows unparalleled demonstrations of collaborative work.

SC99 Call For Participation

Scalable Architectures   **Networking**   **Enabling Technologies**
Computational Modeling   **Data Archives**   **Visualization**

Now is the time...

...to consider your participation in SC99, the conference for high performance networking and computing. The conference will feature:

- Technical Papers
- Tutorials
- Research Exhibits
- Poster Exhibits
- HPC Games
- Birds-of-a-Feather Sessions
- SCinet99
- Education Program and Student Volunteers
- Industry Exhibits and Exhibitor Forum
- Awards

SC99 Information

www.sc99.org/general
Email: info@sc99.org
888-778-7299/619-534-5039

Exhibitor Information

www.sc99.org/exhibits
Email: dc@dcexpo.com
888-980-5488/702-322-5881

Don't Miss SC99

- The technical program is the strongest of any high performance networking and computing conference.
- The conference is organized by world leaders in high performance networking and computing from academia, government, and industry.
- The SCing conference has for many years been the proving ground for late-breaking research in high performance networking and computing.
- The annual SCinet infrastructure for the conference is a true national collaboration and a demonstration of advanced networking management and performance.
- Attendees represent the world's most significant decision-makers, who attend each year to pulse the industry's activities and plan for the future.
- The combination of research, poster, and industry exhibits on the same exhibition floor allows unparalleled demonstrations of collaborative work.
- Annual SCing conferences are the traditional meeting place for the high performance networking and

computing community.

Online registration for SC99 will be available at www.sc99.org/registration by July 1, 1999. Highly reduced rates for early registration.

SC99 Call for Participation

Information for All Contributors

- Submission information: www.sc99.org/submissions
- Proposals must be prepared in HTML and submitted via the Web.
- Details available on the Web.

Dates to Remember

- April 30, 1999
  -Extended abstracts for technical papers
  -Proposals for tutorials
- June 18, 1999
  -Notification of acceptance for technical papers, tutorials
- August 6, 1999
  -Proposals for research exhibits, poster exhibits, birds-of-a-feather sessions, HPC games, exhibitor forum talks
- September 3, 1999
  - Notification of acceptance for research exhibits, poster exhibits, birds-of-a-feather sessions, HPC games, exhibitor forum talks
  - Student volunteer applications
- November 13-19, 1999
  -SC99: Time to enjoy the conference

Visiting Portland

The SCing conference is returning to Portland in 1999 due to the city-wide support and success of SC93. Attendees will find world-class dining and performing arts, snow-capped mountains, recreational activities in thousands of acres of parks, sidewalks paved with famous quotes, a bevy of brews served up by local microbreweries and specialty coffee shops, and the largest bookstore in the United States. Portland's arts and entertainment range from chamber music concerts to clubs featuring jazz, blues, and alternative rock 'n' roll, making Portland live up to its newest nickname, "Hip City." Also known as the "City of Roses," Portland is home to the International Rose Test Garden, where more than 500 varieties of roses bloom.

Plan your visit by checking

- www.pova.com/
- www.katu.citysearch.com/
- www.traveloregon.com/

Technical Papers

SC99 solicits original papers reporting results and experiences related to high performance networking and computing. Topics of interest include: local- and wide-area networking, distributed computing systems, data- and computation-intensive applications, exploitation of large-scale databases, scalable

systems, system interconnection networks, high-performance I/O, programming environments and tools, performance measurement and analysis, parallel databases, visualization, distributed collaborations, parallel and distributed algorithms, digital libraries, and data mining.

The technical paper committee will review extended abstracts (3,500 words) and select papers of exceptional originality, timeliness, relevance, and clarity. Each selected paper will be published in full form in the SC99 Proceedings and presented by its author during the conference.

Submissions must include a descriptive abstract (150 words, max.), contact information for the authors, the designation "student paper" if the principal author is a student, and a 3,500-word summary of the proposed paper.

Special Awards: $1,000 will be awarded for the paper selected by the technical papers committee as "best paper of conference," and an award of $500 will be made for the best paper with a student as principal author. These will be announced at the SC99 Awards Session.

Deadline for submission (extended abstracts): April 30, 1999
Notification of acceptance: June 18, 1999
Deadline for submission of accepted papers: August 6, 1999

Submission information: www.sc99.org/submissions
Questions to: techpapers@sc99.org
Technical Papers Chair: David Bailey, NERSC, Lawrence Berkeley Laboratory

Program Committee

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Mary Vernon, University of Wisconsin
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Rich Wolski, UC San Diego
Kathy Yelick, UC Berkeley

Tutorials

The tutorials program will cover a broad range of topics related to the theory and practice of high performance networking and computing, including parallel and distributed computing, scalable architectures, scientific visualization, network technology, operating systems, compiler technology, algorithms and numerical methods, program development tools, performance measurement and analysis, data mining, storage access systems, Web/video servers, and collaborative technologies.

Tutorials may be proposed for either a full day (six hours) or half day (three hours), but should be designed to appeal to a significant portion of SC99 attendees.

Proposals must include a descriptive abstract (200 words, max.), contact information for the presenter, a breakdown of the level of presentation (total of 100%, subdivided into % introductory, % intermediate, and % advanced), brief description of the tutorial material and intended audience, lecture outline/schedule (3 hours for half-day, 6 hours for full-day), samples of visual materials to be used, short vita of the instructor, and three references.

Deadline for submission: April 30, 1999
Notification of acceptance: June 18, 1999

Submission information: www.sc99.org/submissions
Questions to: tutorials@sc99.org
Tutorials Chair: Paul Shahady, Wright-Patterson Air Force Base

Tutorials Committee

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Research Exhibits

Proposals are solicited for research exhibits that address the areas of resource-intensive computational science, scientific collaboration, and leading-edge technologies. Exhibits should present new and innovative research efforts and results that lend themselves to live demonstration, as they are intended to encourage interaction and discussion between the presenters and conference attendees. Research exhibitors are encouraged to include educational outreach programs in their proposals and exhibits. High performance network links are available for dynamically presenting research that involves distributed, collaborating sites or for linking to specific remote resources or special facilities.

The research exhibit area will be adjacent to the industry exhibits. Research exhibitors are expected to staff their exhibits during all announced exhibition hours.

Research exhibits will be selected through committee review. Multimedia proposals suitable for Web access are encouraged. They must include a descriptive abstract (150 words, max.), contact information, desired network connections and space requirements, and a brief description of the research to be presented and equipment that will be used.

Deadline for submission: August 6, 1999
Notification of acceptance: September 3, 1999

Submission information: www.sc99.org/submissions
Questions to: res.exhibits@sc99.org
Research Exhibits Chair: Barbara Horner-Miller, Arctic Region Supercomputing Center

Poster Exhibits

Poster presentations at SC99 will describe results and experiences related to high performance networking and computing. They offer researchers an opportunity to present their results informally and to interact with conference attendees. To maximize attendee participation, the poster area will be adjacent to the research exhibits. Exhibitors are expected to staff their exhibits during scheduled poster sessions.

Poster exhibits will be selected through committee review. They must include a descriptive abstract (150 words, max.), contact information for the presenter, any requirements for equipment, and a brief description of the planned exhibit.

Deadline for submission: August 6, 1999
Notification of acceptance: September 3, 1999

Submission information: www.sc99.org/submissions
Questions to: posters@sc99.org
Poster Exhibits Chair: John Grosh, DoD HPC Modernization Office

HPC Games

The HPC Challenge has been one of the most popular events at past SC conferences. This tradition continues in the HPC (Fun and) Games, a contest to test the mettle of high performance computing teams everywhere.

Entries are solicited for demonstrations of virtuosity in high performance computation. Each entry must outline its approach to solving a well-defined problem, and describe the hardware and software to be used. Each entrant will then be given one hour at SC99 to solve their problem-live--and describe their computation to the audience. At the conference, a panel of judges will rate entries in three categories:

1. Speed: Number of useful operations performed divided by time taken. (Judges will make the final determination as to whether claimed operations are useful.)

2. Distance: Greatest distance between processors used. (For distributed systems, the great-circle distance between the cities housing the machines will be used.)

3. Style: Audience appreciation of the presentation. (The decision of the applause meter will be final.)

Deadline for entry: August 6, 1999
Notification of acceptance: September. 3, 1999

Submission information: www.sc99.org/submissions
Questions to: games@sc99.org
HPC Games Chair: Charles Koelbel, National Science Foundation

Birds-of-a-Feather (BOF) Sessions

BOFs are informal evening get-togethers where conference attendees can discuss topics of mutual interest. The conference provides meeting room facilities and posts daily schedules for BOFs. BOFs are open to all conference attendees, including exhibitors and exhibits-only badge holders.

Proposals must include a descriptive abstract (150 words, max.), contact information for the organizer, a short description of issues to be addressed and the intended audience, the expected number of participants, any equipment requirements, and time preferences. Time slots are made available on a first-come-first-served basis.

Deadline for submission: August 6, 1999 Notification of acceptance: September 3, 1999

Submission information: www.sc99.org/submissions
Questions to: bofs@sc99.org
BOFs Chair: Jim Costa, Sandia National Laboratory

Education Program and Student Volunteers

SC99's education program provides an opportunity for educators and school administrators to explore key issues in the use of networking and computing technology for education, particularly at K-12 levels. How should the technology curriculum be kept current with evolving technology? Should emphasis be placed on how new technological resources can be developed, or on technology as a tool to accomplish other tasks? What strategies can be developed to attract more students to technology, especially students from underrepresented groups?

Activities range from group discussions to presentations on the latest technological developments and hands-on workshops for effectively exploiting technology. SC99 Research Exhibitors will be showing their educational outreach programs, as well.

The SC99 education program will be developed with the assistance of volunteers from universities, government, and industry. Specific opportunities are described on the Web. Potential participants and collaborators should check the site frequently to stay abreast of new opportunities.

Opportunities for collaboration: www.sc99.org/education
Questions to: education@sc99.org
Education Chair: Tom Cook, Oregon Public Education Network

Student volunteers have always been a big part of the SCing conference. Undergraduate and graduate students have the opportunity to see and discuss the latest high performance networking and computing technology and meet leading researchers from around the world, while contributing to the success of this annual event. Meals (and lodging for non-local students) are provided for volunteers, who receive all the benefits of conference registration, as well as paid membership in their choice of ACM or IEEE Computer Society. Volunteers must be registered students and have the approval of their advisors.

Deadline for application: September 3, 1999
Submission information: www.sc99.org/studentvol
Questions to: studentvol@sc99.org
Student Volunteer Chair: TBA

SCinet99

SCinet, the on-site network designed and built especially for the annual SC conference, vividly demonstrates the integral role that high performance networking plays in the deployment of computing technology.

SCinet99 will establish a state-of-the-art network that will enable a rich environment for real-time demonstrations, communications, and interactivity during the conference. We will be able to support Fast Ethernet, Gigabit Ethernet, ATM (OC-3 and OC-12), HIPPI 6400, and Fiber Channel on the exhibit floor (as well as legacy LAN's). A high-speed local loop to the NTON optical network testbed will provide access to ESnet, vBNS/Abilene, NREN, and DREN.

As in prior years, we are organizing an elite team of researchers, exhibitors, communications carriers, and networking equipment suppliers, along with talented volunteers from universities, government and industry, to assemble and operate SCinet99. Specific opportunities are described on the Web. Potential collaborators should check the site frequently to stay abreast of new opportunities for participation.

Opportunities for collaboration: www.sc99.org/scinet
Questions to: scinet@sc99.org
SCinet99 Chair: Bill Wing, Oak Ridge National Laboratory

Industry Exhibits and Exhibitor Forum

Associated with the annual SC conference is the premiere industry exhibition in high performance networking and computing. Exhibiting companies provide products and services in areas such as high performance computing, networking, telecommunications services, storage systems, multimedia and video-on-demand, scientific and engineering applications, programming environments, graphics and visualization, virtual environments, educational software, and data-intensive application software.

Information and list of exhibitors: www.sc99.org/exhibits
Questions to: indexhibits@sc99.org
Exhibits Chair: Sally Haerer, National Center for Atmospheric Research Exhibition Management: Don Collier, dc@dcexpo.com

The exhibitor forum provides an excellent opportunity for leading industry representatives to describe research and development breakthroughs. These 20-minute presentations must be non-commercial in nature, covering such topics as future directions in research and development, the emergence of new technologies related to high performance networking and computing, and new applications areas.

Forum presentations are open to all conference attendees, including exhibitors and exhibits-only badge holders. The sessions run concurrently with the technical program from Tuesday through Thursday and are limited to companies exhibiting at SC99 (maximum of one presentation per exhibitor).

Time slots are made available on a first-come-first-served basis. Proposals must include a descriptive abstract (150 words, max.), contact information for the presenter, any equipment requirements, and time preferences. Details are available on the Web.

Deadline for submission: August 6, 1999
Notification of acceptance: Sept. 3, 1999

Submission information: www.sc99.org/submissions
Questions to: exforum@sc99.org
Exhibitor Forum Chair: Doug Hurley, University of Kentucky

Awards

In addition to the awards for the best paper of conference, the best paper with a student as principal author, and the HPC Games awards, SC99 will host two annual awards. The two awards are the IEEE Computer Society Seymour Cray Computer Engineering Award, which is presented in recognition of innovative contributions to high performance computing systems that best exemplify Seymour Cray's creative spirit; and the IEEE Computer Society Sidney Fernbach Award, which is given to someone who has made "an outstanding contribution in the application of high performance computers using innovative approaches." Additional information is available at www.sc99.org/awards.

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